Written Amendment

(Amendment based on Section 11)

To Examiner at the Patent Office

1. Identification of the International Application
PCT/JP03/01960

2. Applicant

Name:	MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.
Address:	1006-banch, Oaza-Kadoma, Kadoma-shi, Osaka 571-8501 JAPAN
Nationality:	JAPAN
Residence:	JAPAN

3. Attorney

Name:	IKEUCHI SATO & PARTNER PATENT ATTORNEYS
Address:	26th Floor, OAP TOWER, 8-30, Tenmabashi 1-chome, Kita-ku, Osaka-shi, Osaka 530-6026 JAPAN

4. Object of Amendment:
Claims

5. Contents of Amendment
(1) As described in the attached sheets, "a first lens group that includes a lens having negative refractive power and a lens having positive refractive power, as well as a lens having positive refractive power, arranged in that order from an object side to an image plane side, the first lens group having an overall positive refractive power and being fixed with respect to an image plane;" in Claim 1 is changed to "a first lens group that is made of a lens having negative refractive power and a lens having positive refractive power, as well as a lens having positive refractive power, arranged in that order from an object side to an image plane side, the first lens group having an overall positive refractive power and being fixed with respect to an image plane;".
(2) As described in the attached sheets, Claim 1 is amended by deleting "a condition of the following Expression (10) is satisfied when RIH indicates an image height, Sg_i indicates a specific gravity of each lens and CL_i indicates a lens diameter of

each lens in the third lens group

$$\sum_{i=1}^{n} (Sg_i \cdot CL_i^2) / RIH < 50 \qquad (10).\text{"}$$

and limiting with Expression (5), while Claim 5 is cancelled.

(3) As described in the attached sheets, "is made of a concave lens, a convex lens and a concave lens" in Claim 2 is changed to "is made of a convex lens, a concave lens and a convex lens".

(4) As described in the attached sheets, Claims 4, 6, 12 and 13 are cancelled.

(5) As described in the attached sheets, Claims 14-22 are newly added.

6. List of appended documents

New sheets of pages 30-33/1 for Claims

(pages 26-28/2 in English translation)

CLAIMS

1. (Amended) A zoom lens comprising:

a first lens group that is made of a lens having negative refractive power and a lens having positive refractive power, as well as a lens having positive refractive power, arranged in that order from an object side to an image plane side, the first lens group having an overall positive refractive power and being fixed with respect to an image plane;

a second lens group having an overall negative refractive power, a zoom operation being carried out by shifting the second lens group on an optical axis;

an aperture stop that is fixed with respect to the image plane;

a third lens group that is made of a lens having positive refractive power, as well as a lens having a positive refractive power and a lens having negative refractive power, arranged in that order from the object side to the image plane side, the third lens group having an overall positive refractive power and being fixed with respect to the optical axis direction when zooming or focusing; and

a fourth lens group that is made of a lens having positive refractive power, a lens having negative refractive power and a lens having positive refractive power, arranged in that order from the object side to the image plane side, the fourth lens group having an overall positive refractive power and being shifted on the optical axis so as to maintain the image plane that fluctuates when the second lens group is shifted on the optical axis and when the object moves, at a certain position from a reference plane;

wherein the second lens group is made of a concave meniscus lens, a concave lens, a double convex lens and a concave lens, arranged in that order from the object side to the image plane side, and includes at least one aspheric surface;

wherein the third lens group comprises a cemented lens having a cemented surface whose convex surface faces the image plane side, the third lens group can be shifted in a direction perpendicular to the optical axis in order to correct image fluctuations during camera shake, and includes at least one aspheric surface;

wherein the fourth lens group comprises at least one aspheric surface; and

wherein a condition of the following Expression (5) is satisfied when f_1 indicates a focal length of the first lens group, and $f_{11\text{-}12}$ indicates a combined focal length of a first lens and a second lens of the first lens group viewed from the object side

$$3.2 < f_{11\text{-}12} / f_1 < 5.0 \qquad (5).$$

2. (Amended) The zoom lens according to claim 1, wherein the fourth lens group is made of a convex lens, a concave lens and a convex lens, arranged in that order from the object side to the image plane side, and all of the lenses are cemented together.

3. The zoom lens according to claim 1, wherein the fourth lens group is made of three lenses and all of the lenses are cemented together, satisfying conditions of the following Expressions (1) and (2) when τ_{370} indicates transmittance of light having a wavelength of 370 nm and τ_{380} indicates transmittance of light having a wavelength of 380 nm at a part of a lens where the thickness is 10 nm, the lens is the second in the fourth lens group when viewed from the object side

$$0.02 < \tau_{370} < 0.2 \quad (1)$$

$$0.2 < \tau_{380} < 0.55 \quad (2).$$

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. The zoom lens according to claim 1, wherein a condition of the following Expression (7) is satisfied when $dsag_{2i1}$ indicates an aspheric amount at the 10% effective aperture of an i^{-th} aspheric surface of the second lens group viewed from the object side, and $dsag_{2i9}$ indicates an aspheric amount at the 90% effective aperture of an i^{-th} aspheric surface of the second lens group viewed from the object side

$$-0.23 < dsag_{2i1} / dsag_{2i9} < -0.10 \quad (7).$$

8. The zoom lens according to claim 1, wherein the aspheric surface of the second lens group is a surface arranged closest to the image plane side, and the aspheric surface being the concave surface that faces the image plane side.

9. The zoom lens according to claim 1, wherein a condition of the following Expression (8) is satisfied when $dsag_{3i1}$ indicates an aspheric amount at the 10% effective aperture of an i^{-th} aspheric surface of the third lens group viewed from the object side, and $dsag_{3i9}$ indicates an aspheric amount at the 90% effective aperture of an i^{-th} aspheric surface of the third lens group viewed from the object side

$$-0.24 < dsag_{3i1} / dsag_{3i9} < -0.15 \quad (8).$$

10. The zoom lens according to claim 1, wherein a condition of the following Expression (9) is satisfied when $dsag_{4i1}$ indicates an aspheric amount at the 10% effective aperture of an i^{-th} aspheric surface of the fourth lens group viewed from the object side, and $dsag_{4i9}$ indicates an aspheric amount at the 90% effective aperture of an i^{-th} aspheric surface of the fourth lens group viewed from the object side

$$-0.45 < dsag_{4i1} / dsag_{4i9} < -0.13 \quad (9).$$

11. (Cancelled)

12. (Cancelled)

13. (Cancelled)

14. (New) A zoom lens comprising:

a first lens group that is made of a lens having negative refractive power and a lens having positive refractive power, as well as a lens having positive refractive power, arranged in that order from an object side to an image plane side, the first lens group having an overall positive refractive power and being fixed with respect to an image plane;

a second lens group having an overall negative refractive power, a zoom operation being carried out by shifting the second lens group on an optical axis;

an aperture stop that is fixed with respect to the image plane;

a third lens group that is made of a lens having positive refractive power, as well as a lens having a positive refractive power and a lens having negative refractive power, arranged in that order from the object side to the image plane side, the third lens group having an overall positive refractive power and being fixed with respect to the optical axis direction when zooming or focusing; and

a fourth lens group that is made of a lens having positive refractive power, a lens having negative refractive power and a lens having positive refractive power, arranged in that order from the object side to the image plane side, the fourth lens group having an overall positive refractive power and being shifted on the optical axis so as to maintain the image plane that fluctuates when the second lens group is shifted on the optical axis and when the object moves, at a certain position from a reference plane;

wherein the second lens group is made of a concave meniscus lens, a concave lens, a double convex lens and a concave lens, arranged in that order from

the object side to the image plane side, and includes at least one aspheric surface;

wherein the third lens group comprises a cemented lens having a cemented surface whose convex surface faces the image plane side, the third lens group can be shifted in a direction perpendicular to the optical axis in order to correct image fluctuations during camera shake, and includes at least one aspheric surface;

wherein the fourth lens group comprises at least one aspheric surface; and

wherein a condition of the following Expression (6) is satisfied when f_{13} indicates a focal length of a third lens of the first lens group viewed from the object side, and f_{132} indicates a focal length of a surface of the third lens of the first lens group facing the image plane viewed from the object side

$$-2.5 < f_{132} / f_{13} < -1.5 \quad (6).$$

15. (New) The zoom lens according to claim 14, wherein the fourth lens group is made of a convex lens, a concave lens and a convex lens, arranged in that order from the object side to the image plane side, and all of the lenses are cemented together.

16. (New) The zoom lens according to claim 14, wherein the fourth lens group is made of three lenses and all of the lenses are cemented together, satisfying conditions of the following Expressions (1) and (2) when τ_{370} indicates transmittance of light having a wavelength of 370 nm and τ_{380} indicates transmittance of light having a wavelength of 380 nm at a part of a lens where the thickness is 10 nm, the lens is the second in the fourth lens group when viewed from the object side

$$0.02 < \tau_{370} < 0.2 \quad (1)$$

$$0.2 < \tau_{380} < 0.55 \quad (2).$$

17. (New) The zoom lens according to claim 14, wherein a condition of the following Expression (7) is satisfied when $dsag_{2i1}$ indicates an aspheric amount at the 10% effective aperture of an i^{-th} aspheric surface of the second lens group viewed from the object side, and $dsag_{2i9}$ indicates an aspheric amount at the 90% effective aperture of an i^{-th} aspheric surface of the second lens group viewed from the object side

$$-0.23 < dsag_{2i1} / dsag_{2i9} < -0.10 \quad (7)$$

18. (New) The zoom lens according to claim 14, wherein the aspheric surface of the second lens group is a surface arranged closest to the image plane side, and the aspheric surface being the concave surface that faces the image plane side.

19. (New) The zoom lens according to claim 14, wherein a condition of the following Expression (8) is satisfied when $dsag_{3i1}$ indicates an aspheric amount at the 10% effective aperture of an i^{-th} aspheric surface of the third lens group viewed from the object side, and $dsag_{3i9}$ indicates an aspheric amount at the 90% effective aperture of an i^{-th} aspheric surface of the third lens group viewed from the object side

$$-0.24 < dsag_{3i1} / dsag_{3i9} < -0.15 \quad (8).$$

20. (New) The zoom lens according to claim 14, wherein a condition of the following Expression (9) is satisfied when $dsag_{4i1}$ indicates an aspheric amount at the 10% effective aperture of an i^{-th} aspheric surface of the fourth lens group viewed from the object side, and $dsag_{4i9}$ indicates an aspheric amount at the 90% effective aperture of an i^{-th} aspheric surface of the fourth lens group viewed from the object side

$$-0.45 < dsag_{4i1} / dsag_{4i9} < -0.13 \quad (9).$$

21. (New) A video camera comprising a zoom lens, wherein the zoom lens used is according to any of claims 1-3, 7-10, and 14-20.

22. (New) A digital still camera comprising a zoom lens, wherein the zoom lens used is according to any of claims 1-3, 7-10, and 14-20.